The Nasdaq Opening and Closing Crosses

Quick Reference Guide

The Nasdaq Opening Cross™ and Closing Cross™ are open to all securities listed on the Nasdaq, NYSE, Amex and NYSE Arca exchanges.

Opening Order Types

Regular Hours Orders: Executable from 9:30 a.m. to 4:00 p.m., Eastern Time® (ET), including during the cross.
- Includes Day, GTC and IOC orders.
- Limit Orders placed after 9:28 a.m. are treated as Imbalance-Only (IO) orders for the Opening Cross.
- Market Orders placed after 9:28 a.m. will be held until the market opens and will not participate in the Opening Cross.

On-Open (OO) Orders: Executable only during the cross.
- Market-on-open (MOO) must be received prior to 9:28 a.m.
- Limit-on-open (LOO) received after 9:28 a.m. are treated as Imbalance-Only orders.

System Hours Orders: Are posted and available for execution immediately and may participate in the Opening Cross.
- Includes, extended Day, extended GTC and extended immediate-or-cancel orders.
- Executable during normal and extended hours (4:00 a.m. to 8:00 p.m.). No market orders during extended hours.

Imbalance-Only (IO) Orders: Executable only during the Cross.
- Liquidity-providing orders that stabilize the crossing price.
- IO orders to buy (or sell) that are priced more aggressively than the 9:30 a.m., Nasdaq bid (or ask) will be adjusted to the Nasdaq bid (or ask) prior to the execution of the Cross.

Opening Timeline of Events

4:00 A.M.
Trading and order entry begins.
- Nasdaq begins accepting entry of orders.
- Entered orders can be canceled.
- Pre-open trading session begins for system hours orders.
- System hours orders are firm and are disseminated over market data feeds.

9:28 A.M.
- Dissemination of opening order imbalance information begins.
- MOO split orders may no longer be entered, canceled or canceled/replaced.
- LOO orders received after 9:28 a.m. are treated as Imbalance-Only orders.
- Cancel requests of regular hours orders (Day, GTC, IOC, market) will be pended until after the cross occurs.
- Regular hours limit orders arriving after this time will be treated as IO orders.
- IO orders may be submitted but not updated or canceled.

9:30 A.M
The Opening Cross occurs.
- The Opening Cross process begins, Nasdaq Official Opening Prices are disseminated, and executions are sent to the tape.
Opening Cross Execution Priority¹

1. MOO orders and early (pre-9:28 a.m.) regular hours market orders.
2. Orders priced more aggressively than the crossing price, including:
   • LOO orders, early regular hours limit orders (display and reserve), IO orders, and extended hours orders (display and reserve).
3. Orders priced at the crossing price, including:
   • LOO orders, IO orders and displayed portion of early regular hours limit orders and extended hours orders in time priority.
   • Extended hours orders reserve in time priority.

Nasdaq Cross Times (all times Eastern)

<table>
<thead>
<tr>
<th>Opening Cross</th>
<th>Closing Cross</th>
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<tbody>
<tr>
<td>4:00 a.m.</td>
<td>3:55 p.m.</td>
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<tr>
<td>9:28 a.m.</td>
<td>Dissemination of imbalance information begins</td>
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<tr>
<td>9:30 a.m.</td>
<td>The Opening Cross initiated</td>
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<tr>
<td>3:55 p.m.</td>
<td>Dissemination of imbalance information begins</td>
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<tr>
<td>4:00 p.m.</td>
<td>The Closing Cross initiated</td>
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Closing Timeline of Events

PRIOR TO 3:55 P.M.
Nasdaq begins accepting MOC, LOC and IO orders.
• Entered orders can be canceled.

3:55 P.M.
Dissemination of closing order imbalance information begins.
• Nasdaq stops accepting entry, cancellation or cancel/replacement of MOC orders.
• LOC Orders may be entered until 3:58 p.m. ET, but may not be canceled or modified after posting on the order book.

3:58 P.M.
• Nasdaq stops accepting entry of LOC orders.
• IO orders may be submitted but not updated or canceled.

4:00 P.M.
The Closing Cross occurs.
• Nasdaq Official Closing Prices are disseminated and executions are sent to the tape.

Closing Cross Execution Priority¹

1. MOC orders in price/time priority.
   • IO orders and displayed interest of limit orders/quotes in price/time priority.
   • Reserve size for the above executes last at each price level before moving on to the next price level.
2. LOC orders in price/time priority.

¹ Priority for IO orders will be applied after the limit prices of IO orders have been adjusted to reflect the Nasdaq Inside at the time of the Opening / Closing Cross.

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